May 25, 2023 *Via Electronic Delivery*

Ms. Susan Poulsom and Mr. Brian Nickel
Water Division, NPDES Permitting Section
US EPA Region 10
1200 Sixth Avenue, Suite 155
Seattle, Washington 98101

Subject: Public Notice Comments: NPDES Permit No. WA0050202
Washington Beef, LLC - Toppenish Plant

Dear Ms. Poulsom and Mr. Nickel:

Pursuant to 40 CFR 124.11, Washington Beef, LLC (WB) hereby submits the following comments on the Draft NPDES Permit No. WA0050202 issued by the US Environmental Protection Agency (EPA) for public notice on February 10, 2023, with comment period ending May 26, 2023.

The draft permit proposes significant changes and reductions to discharge limits without first consulting with WB and providing access to the basis on which the new requirements were developed and has resulted in our submittal of numerous and significant comments. WB has been required to submit a Freedom of Information Act (FOIA) request for all data supporting the draft permit. Only a partial response to the FOIA was issued by EPA. WB has been frustrated with the lack of interaction with EPA during the draft permit process.

In our previous communication, (letter dated February 16, 2023) WB noted that the development of appropriate standards for nutrients and translation of narrative water quality standards (WQS) into numeric limits is not a straightforward technical approach as suggested in the Fact Sheet. After a detailed review of the available information supporting the permit by our two wastewater consultant firms, WB's position has not changed.

WB takes issue with much of the technical bases for the permit limits, specifically EPA's evaluation of data to develop the new and/or more stringent proposed permit limitations and the burden placed on WB absent any measurable environmental benefits.

As a threshold matter, most of the proposed new permit limits do not appear to be based on changes to WB's effluent discharges, the impact of such discharges to water quality, or even to changes to Yakama Nation water quality regulations. Rather, the new proposed limits are based entirely on EPA unilaterally applying Washington WQS to Yakama Nation waters without going through the notice and comment procedures required for water quality standard rulemaking under the Clean Water Act (CWA) and the federal Administrative Procedures Act (APA).

We recognize that EPA claims to be applying Washington WQS to the receiving waters as a "reference" in the Fact Sheet. However, such an approach does not allow EPA to avoid following rulemaking procedures required under the CWA and the APA for promulgation of WQS.

We note, the Fact Sheet does not even request any public comment on whether use of Washington WQS is appropriate for the receiving waters. Similarly, there is no opportunity to comment on whether the designated uses and associated criteria EPA has unilaterally adopted to the receiving waters in this permit action are appropriate. To illustrate this point, in the Fact Sheet EPA establishes domestic water supply as a new designated use for Wanity Slough and Spencer Lateral and proposes lower permit limits to meet these new designated uses. However, absent in the Fact Sheet is any finding that such a new designated use is an existing use or even an attainable use. The fact that both waterbodies are heavily impacted by agricultural activities and serve as irrigation conveyances for diversion of irrigation water and for

irrigation return flows, strongly suggests that domestic water supply is neither an existing use nor an attainable use for either waterbody.

Tellingly, we note that EPA recently published a draft rule to adopt WQS for Tribal waters that do not already have federally approved WQS such as the Yakama Nation (See 88 FR 29496 May 5, 2023) (Baseline Water Quality Standards). Until the proposed Baseline Water Quality Standard rule goes through the rulemaking procedures required by federal law, EPA's approach in the Fact Sheet of promulgating new WQS without going through formal rulemaking violates the CWA and the APA. Therefore, WB believes many of the new proposed limits are not legally supportable.

## Summary of Comments

WB comments on the draft permit documents are discussed in detail in **Attachment 1** to this letter. The comments are generally organized following the Fact Sheet outline, including discussions on the applicable WQS and designated beneficial uses of the receiving waters, and the basis for effluent limits. The proposed draft limits are discussed in terms of technology-based effluent limits (TBELs) and water quality-based effluent limits (WQBELs); the WQBEL discussion includes comments regarding reasonable potential (RP) to exceed analysis for potentially toxic substances and nutrients separately. Specific comments and/or requested text changes to the permit documents also are provided via red-lined versions of the permit and the fact sheet in **Attachment 2** and **Attachment 3**, respectively.

Based on the detailed comments presented in Attachments 1, 2 and 3, WB requests the following with regards to the draft permit:

- Removal of numerical WQBELs for Ammonia, Nitrate, and TDS and WET testing requirements at Outfall 008 and Ammonia at Outfall 002 based on no demonstration of RP. With this removal, WB requests that only the Ammonia TBEL concentration limit apply.
- Removal of the new and/or more stringent final and seasonal WQBEL nutrient limits (Total Nitrogen and Total Phosphorus) for Outfall 002, with consideration of the technical comments provided in Attachment 1 and the activities outlined in the proposed Special Condition Study schedule.
- With removal of the nutrient WQBELs, WB requests that Total Phosphorus concentration be specified in the permit as monitor only, and Total Nitrogen limit set as a concentration-based TBEL similar to prior NPDES permits.
- As outlined in the proposed schedule (included with Attachment 1, and discussed in Comments #23 and 24), WB is requesting to complete two studies (to be specified as Special Conditions in the permit) to collect data to inform the development of reasonable and attainable nutrient limits. WB will submit the study data to EPA in a report per the approved schedule, along with the nutrient data collected as part of routine compliance monitoring under the new permit. Note that the proposed Special Condition Study schedule is based on EPA's acceptance of WB's comments.
- WB requests revision to the Compliance Schedule to reflect WET testing evaluation and selection of a compliance option at Outfall 002 only (refer to Comment #25).

## Compliance Schedule and Other Regulatory Flexibility Options

WB appreciates EPA's consideration for a compliance schedule for certain pollutants (e.g., nitrogen, phosphorous, nitrate, and TDS) of four years and eleven months in the draft permit. As set forth in Attachment 1, WB believes there are serious legal and technical questions about whether the final limits are supportable. Nevertheless, without waiving our objections to these proposed final limits, and acknowledging that attempting to meet the proposed final permit limits for these pollutants will probably be prohibitively expensive if they can actually ever be achieved, WB believes a much longer compliance schedule is required. WB believes a compliance schedule of ten (10) to fifteen (15) years is warranted.

Also, we note that the Fact Sheet does not even offer the possibility of WB seeking a variance from the proposed WQBELs under 40 CFR 131.14. Due to the prohibitive costs of attempting to comply with the proposed WQBELs, normally a variance might be a viable option. However, it is not here, because there are no federally approved WQS in place. Clearly the state of Washington cannot authorize a variance to WQS for Yakama Nation waters and 40 CFR 131.14 does not either.

EPA's proposed Baseline Water Quality Standards draft rule does specifically authorize a variance. WB should have the opportunity to seek a variance, like other discharges throughout the United States. Once EPA finalizes the Baseline Water Quality Standards, WB can submit adequate information and data to support a variance request.

Because EPA impermissibly applied Washington WQS to Wanity Slough and Spencer Lateral in the draft permit, WB believes a new draft permit must be published applying the applicable federally approved standards, which at this time is the effluent limitations and guidelines (ELGs). Alternatively, WB believes delaying a new draft permit until EPA finalizes the Baseline Water Quality Standards is warranted and legally required should EPA rely upon federally enforceable WQS in setting permit limits. We appreciate EPA's consideration of the comments provided. If you have questions or require additional information, please contact me at (509) 865-0602 or Jeff.Cromer@abfoodsusa.com.

Sincerely,

Jeff Cromer

Jeff Cromer, General Manager
Agri Beef Co, Toppenish, WA

# Attachment 1: WB Comments on Draft Permit No. WA0050202

## EPA Permit and Fact Sheet – Overview of Comments

### Applicable Water Quality Standards (Section III.A, page 12 of 187)

EPA established water quality standards (WQS) for Wanity Slough and Spencer Lateral without following the procedures established by the Clean Water Act (CWA), EPA's regulations implementing the CWA, and the Administrative Procedure Act (APA).

The WB facility discharges to Wanity Slough and Spencer Lateral, both of which are tribal waters located on the Yakama Nation Reservation. The Yakama Nation does not have EPA-approved WQS. Although Washington State has EPA-approved WQS, these WQS are not applicable within the Yakama Nation Reservation. As EPA has recognized, there is currently a "gap" in the establishment of WQS on federal Indian reservations that have not been recognized for treatment in a manner similar to a state, including the Yakama Nation Reservation. 81 Fed. Reg. 66900 (Sept. 29, 2016).

Instead of adopting discharge limitations for downstream waters over which Washington's WQS apply, EPA purported to use the Washington WQS "as reference for setting permit limits." By adopting Washington's WQS "as reference," EPA promulgated new WQS for Wanity Slough and Spencer Lateral and relied on those new WQS to establish water quality based effluent limitations (WQBELs) in the draft permit.

Under the CWA, 33 U.S.C. § 1313, and EPA's regulations, 40 C.F.R. § 131.22, when the EPA determines that a new WQS for one or more navigable waters is required to meet the purposes of the CWA, the Administrator must first issue a determination that a new WQS is necessary. Following the Administrator's determination, the EPA must issue a proposed rule and promulgate a final rule, subject to the same policies and procedures as the states, when adopting new WQS. 40 C.F.R. § 131.22. WB notes that EPA previously made a determination that promulgation of federal WQS are necessary for Yakama Nation waters over twenty years ago in 2001. Apparently, EPA is still relying upon this 2001 determination to support its draft Baseline Water Quality Standards. Simply because EPA has delayed adoption of WQS for Yakama Nation waters for decades does not allow the agency to avoid rulemaking requirements, as it did here.

Here EPA promulgated WQS for Wanity Slough and Spencer Lateral without notice and comment. As described in the Fact Sheet, EPA adopted the designated uses set forth in Washington WQS, Washington Administrative Code (WAC) 173-201A-600, for Wanity Slough and Spencer Lateral. EPA adopted the water quality criteria set forth in WAC 173-201A for the beneficial uses for Wanity Slough and Spencer Lateral, Table 15 ("Applicable Water Quality Criteria"). Finally, EPA adopted Washington's mixing zone policy for point source discharges set out in the Washington WQS, WAC 173-201A-400.

EPA's adoption of Washington WQS for Wanity Slough and Spencer Lateral, where no other WQS apply, had a legally and practically binding effect on the Agency. See Iowa League of Cities v. E.P.A., 711 F.3d 844, 862 (8th Cir. 2013); Appalachian Power Co. v. E.P.A., 208 F.3d 1015 (D.C. Cir. 2000). Instead of setting the WQBEL to protect Washington waters, EPA set the WQBELs totally relying on the newly adopted WQS for Yakama Nation waters. As the court explained in Iowa League of Cities, when the Agency, expands "the footprint of a regulation by imposing new requirements" it has engaged in legislative rulemaking that is required to go through notice and comment. Whether the Agency's pronouncement is subject to notice and comment "depends on whether it substantively amends or adds to … preexisting rules."

Here EPA adopted WQS for two waters of the United States where none had existed before. Neither EPA's regulations, nor the CWA, authorize EPA to apply WQS from one water body to another water body without promulgating WQS for that water body. By using the Washington WQS "as reference" for Wanity Slough and Spencer Lateral, EPA created new WQS. Further, the adoption of the WQS had a binding legal and practical effect on the Agency. By promulgating new WQS for the receiving waters, EPA bound itself to ensure that the effluent limits in the Permit met the newly adopted WQS and set many of the WQBELs based solely on the newly adopted WQS.

WB requests that EPA withdraw the WQS it adopted for Wanity Slough and Spencer Lateral and the associated WQBELS in the draft permit. If the EPA still desires to adopt new WQS for Yakama Nation waters, it must proceed through formal rulemaking, as is required under the CWA and the APA and which it apparently is doing with the draft *Baseline Water Quality Standards*.

In the 2023 Fact Sheet, EPA cites 40 CFR 122.4(d) which states that "no permit may be issued when the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States." WB understands that the EPA can rely upon Washington WQSs if there will be a downstream impact to Washington state waters. The appropriate evaluation in determining whether WB's discharge will violate Washington's WQS is dependent upon a finding that the discharge will cause a detectable violation of Washington's WQS. See Arkansas v. Oklahoma 503 U.S. 91 (1992). However, nothing in the administrative record suggests that EPA evaluated WB's discharge on Washington waters or determined that WB's discharge would cause a detectable violation of Washington's WQS. Instead, EPA simply applied new WQS to Tribal waters in the Fact Sheet. As noted above, such an approach is unlawful. It is noteworthy that the 2009 NPDES Permit Renewal Fact Sheet, EPA stated that "effluent limitations in this permit are not likely to affect Washington WQS provided there is adequate assimilative capacity in the receiving waters on tribal land." With no impacts to downstream state waters indicated, EPA relied upon the unapproved Yakama Nation WQSs to establish the 2009 discharge permit limits, (which have not changed since 2009).

**Comment 1.** Because EPA has not provided evidence that WB discharge will cause a detectable violation to State of Washington WQS, the application of Washington WQS at the point of discharge is not an appropriate inquiry under 40 CFR 122.4(d) and is unlawful under the CWA and the APA. If EPA wishes to adopt Washington WQS for Yakama Nation waters, it needs to complete formal rulemaking.

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## Designated Beneficial Uses (Section III.A.1, page 12 of 187)

As EPA notes in the Fact Sheet, neither Wanity Slough nor Spencer Lateral have specific use designations in the Washington WQS (WAC 173-201A-602, Table 602). EPA then cites WAC 173-201A-600 which states that all surface waters of the state not named in Table 602 are to be protected for the designated uses of: salmonid spawning, rearing, and migration; primary contact recreation; domestic, industrial, and agricultural water supply; stock watering; wildlife habitat; harvesting; commerce and navigation; boating; and aesthetic values.

As noted, EPA's application of Washington State WQS to surface waters of the Yakama Nation is unlawful. Neither the Wanity Slough nor the Spencer Lateral are waters of the State of Washington, therefore both are outside of the jurisdiction of WAC 173-201A-600 for establishing designated uses. Using WAC 173-201A-600 for establishing designated uses for surface waters outside of the State of Washington bypasses normal rulemaking processes for determining the appropriate beneficial use.

**Comment 2.** Until EPA lawfully adopts WQS for Spencer Lateral and Wanity Slough under the CWA and the APA, use of Washington WQS for Tribal waters is not permissible.

## Seasonal Limits (Section III.B.2, page 15 of 187)

The 2023 fact sheet defines the irrigation season as being from May to September and the non-irrigation season as being from October to April. It appears that EPA defined the irrigation seasons based on when wastewater has historically discharged to Outfall 008 (irrigation season) and 002 (non-irrigation season); however, the fact sheet does not provide a basis for the defined seasons and the period when the Spencer Lateral is used for irrigation can vary year-to-year. The 2009 NPDES Permit Renewal Fact Sheet defines the irrigation season as being from March 15 to October 15.

**Comment 3.** WB requests that the irrigation season be defined as the period when the Spencer Lateral is used for irrigation, which can vary year-to-year.

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## Technology Based Effluent Limits (Section IV.A.2, Tables 11 and 122, page 22-23 of 187)

EPA cites in the Fact Sheet that the draft permit TBELs for BOD5, TSS, and Oil and Grease (O&G) are based on production rate of 2,286,3**91** pounds per day (lb/day) live weight killed (LWK). There appears to be a number transposition error; the information provided by WB to EPA on July 26, 2022, noted the production as 2,286,3**19** lb/day.

**Comment 4.** WB requests that the production basis be corrected to reflect 2,286,319 lbs/day.

**Comment 5.** WB requests that the TBELs for $BOD_5$, TSS, and O&G be expressed as mass only based on Federal ELG, and the fact that the effluent flow does not vary significantly. Similarly, WB requests that Ammonia and Total Nitrogen TBELs be expressed as concentration only based on Federal ELG.

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## Water Quality-Based Effluent Limits (Section IV.A.3)

### Reasonable Potential

As noted in Comment 1, EPA's application of Washington WQS at the point of discharge in Yakama Nation waters rather than evaluating the impact to waters of the State of Washington downstream is not lawful under the CWA and the APA. However, even if Washington WQS apply at the point of discharge – which they do not – EPA erroneously implemented Washington WQS in the Fact Sheet. To illustrate the point, WB conducted an independent analysis of reasonable potential (RP) at the point of discharge consistent with Washington State Department of Ecology (Ecology) guidance detailed in Ecology's Permit Writer's Manual. The independent RP analysis provides a direct comparison to EPA results. Effluent flow and water quality data were compiled for the most recent 3-year period (2020-2022) and were specific to seasonal discharges; WB believes this data set is more representative of existing conditions rather than the data EPA relied upon because Outfall 002 discharges to Wanity Slough October through April and Outfall 008 discharges to Spencer Lateral May through September. Our evaluation indicated no RP, and for those parameters that may be of concern, there is very limited data. ***Our updated RP analysis is included at the end of Attachment 1.***

**Comment 6.** Based on no technical basis for RP and lack of sufficient data, WB requests removal of WQBELs for specific parameters including ammonia, nitrate and TDS as detailed in additional comments provided below.

**Dilution Values.** WB calculated dilution using representative maximum day, maximum month and average annual effluent flowrates calculated from daily DMR data. Ambient flow statistics proposed by EPA were not changed, except for the acute aquatic life condition. Ecology guidance specifies using the 7Q10 ambient flow for this condition, rather than the 1Q10 flow proposed by EPA.

Furthermore, because human health criteria are based on long term exposure calculations and bear no relation to mixing zone dimensions for aquatic life avoidance, the EPA assumption of 25 percent of mixing volume is overly conservative. 100 percent mixing volume should be allowed for all analyses other than for aquatic life criteria for toxic constituents consistent with EPA guidance (1991) which states: "At the present time, most States and EPA Regions use steady-state models that assume the wastewater is completely mixed with the receiving waters in order to calculate [wasteload allocations] for contaminants. This approach is appropriate for conventional contaminants where critical environmental effects are expected to occur far downstream from the source."

WB-proposed dilution factors are summarized in the table below:

| | Ambient Flow (cfs) | Effluent Flow (mgd) | % MZ | Dilution |
|---|---|---|---|---|
| **Wanity Slough (October – April)** | | | | |
| Acute: Aquatic Life | 24 | 0.94 | 2.5% | 1.41 |
| Chronic: Aquatic Life | 24 | 0.76 | 25% | 6.08 |
| Human Health (NC) | 27 | 0.76 | 100% | 23.8 |
| Human Health (C) | 56 | 0.68 | 100% | 54.0 |
| Nutrients | 56 | 0.68 | 100% | 54.0 |
| **Wanity Slough (May – September)** | | | | |
| Acute: Aquatic Life | 26 | 0.99 | 2.5% | 1.42 |
| Chronic: Aquatic Life | 26 | 0.79 | 25% | 6.32 |
| Human Health (NC) | 29 | 0.79 | 100% | 24.7 |
| Human Health (C) | 57 | 0.71 | 100% | 52.9 |
| Nutrients | 57 | 0.71 | 100% | 52.9 |
| **Spencer Lateral (May – September)** | | | | |
| Acute: Aquatic Life | 16.4 | 0.99 | 2.5% | 1.27 |
| Chronic: Aquatic Life | 16.4 | 0.79 | 25% | 4.36 |
| Human Health (NC) | 18 | 0.79 | 100% | 15.8 |
| Human Health (C) | 41 | 0.71 | 100% | 38.5 |
| Nutrients | 41 | 0.71 | 100% | 38.5 |

**Comment 7.** WB requests that the dilution factors be updated to reflect most recent effluent flow rate data (2020-2022), 7Q10 ambient flows for acute conditions, and allowance for complete mixing with respect to human health criteria.

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## WQBELs for Potentially Toxic Substances

- **Ammonia:** EPA determined there is RP for ammonia for Outfalls 002 and 008 (May through September). The EPA analysis incorrectly uses the maximum effluent concentration rather than the 95th percentile consistent with Ecology guidance for data sets with greater than 20 values. WB data set for May through September during the period of record (2020 – 2022) includes 198 ammonia samples. The difference between the maximum and 95$^{th}$ percentile values is very large (with the maximum concentration suspected to be an outlier/error). Using the 95th percentile value consistent with Ecology guidance, there is *no RP for Outfalls 002 and 008 between May and September*. WB also confirmed there is *no RP for Outfall 002 during the winter months*.

**Comment 8.** WB requests EPA use appropriate technology-based ammonia limits for Outfalls 002 and 008.

- **Nitrate**: EPA determined there is RP for nitrate for Outfall 008 (May through September). Presumably this was based on the erroneous assumption that domestic water supply is an existing use and designated use for Spencer Lateral. As noted herein, such an assumption is factually and legally flawed. WB determined, using the updated/corrected dilution factor and effluent data specific to the time period (seasonal and 3-year effluent), *there is no RP indicated*. Note that the WB review is conservative because without effluent nitrate data, WB assumed nitrate was equal to total nitrogen minus ammonia (TN – NH3), which neglects the organic nitrogen species. Analyses were performed using 25 percent and 100 percent dilution volumes, both of which concluded no RP for nitrate.

**Comment 9.** WB requests removal of the nitrate WQBELs at Outfall 008 based on no RP and because it was based on an erroneous designated use.

- **TDS:** EPA determined there is RP for TDS for Outfall 008 (May through September) based on the following: 1) effluent data that was analyzed for salinity, not TDS, from WET testing conducted between 2012 and 2014; and 2) two receiving water data points from 1987 for the Wanity Slough which is associated with Outfall 002. There are no data for the Spencer Lateral which is associated with Outfall 008. WB determined, using the updated/corrected dilution factor and effluent data specific to the time period (seasonal and 3-year effluent), *there is no RP indicated*. Absent recent data specific to Outfall 008 and the Spencer Lateral, TDS limits are inappropriate. There is no evidence that the water quality in the Spencer Lateral is directly comparable to the Wanity Slough. Additionally, the RP calculation for Outfall 008 (May through September) used the 99th effluent percentile value instead of the 95th effluent percentile value which is recommended by Ecology.

  In addition, EPA used secondary drinking water treatment standards and guidance from *Quality Criteria for Water 1986* as a basis for deriving permit limits for TDS. However, neither the Wanity Slough nor the Spencer Lateral are a source of drinking water, rather they are a source of agricultural water supply, and neither have a designated use for domestic water supply. The 2009 NPDES Permit Renewal Fact Sheet cites and utilized Yakama Nation WQS, 21.2.3.36, which do not include domestic water as a designated use for the Wanity Slough. For use for agricultural water supply, TDS is not an appropriate parameter to determine permit limits as the extent to which water will have detrimental effects on crops is dependent on the presence of individual constituents.

**Comment 10.** WB requests removal of the TDS WQBEL at Outfall 008 based on lack of sufficient data to determine RP and it was based on an erroneous designated use.

**Comment 11.** WB requests that future permit limits be established for individual constituents of concern for aquatic life protection (i.e., chloride and sulfate) rather than TDS.

- **Whole Effluent Toxicity:** EPA determined there is RP for Whole Effluent Toxicity (WET) for Outfall 008 and for Outfall 002. The RP calculation for Outfall 008 used the 99th effluent percentile value instead of the 95th effluent percentile value which is recommended by Ecology. Additionally, because the aquatic life designation for the Spencer Lateral has not gone through a formal rulemaking process, the application of WET limits to the Spencer Lateral is not currently permissible (see Designated Beneficial Uses section above). WB recognizes that EPA claims a rebuttable presumption that aquatic life is a designated use for all waters of the United States. However, Spencer Lateral is an irrigation canal, a conveyance for irrigation return flows and only flows during irrigation season. Any connection between Spencer Lateral and other downstream waters of the United States that do support aquatic life is tenuous and does not suggest aquatic life is an existing or appropriate use[1]. WB is unaware of any data or information

[1] In the 2009 Fact Sheet EPA alleged that Spencer Lateral was a water of the United States because there is a gate, that if left open, that could connect to Wanity Slough. The 2009 Fact Sheet also noted that the Wapato Irrigation Project ("WIP") would ensure that the gate remain closed during irrigation season. Thus, it is not clear if Spencer

which would support a finding that aquatic life is an existing or attainable use on Spencer Lateral. Also, WB is not in a position to rebut EPA's claimed presumption in the short window allowed for comments to the draft permit.

**Comment 12.** WB requests removal of the WET WQBEL at Outfall 008 based on inappropriate designated use.

- **Sulfate:** EPA did not perform RP calculations or establish a discharge limit for sulfate due to a lack of effluent and receiving water data. However, EPA proposed using the secondary drinking water treatment standard as a basis for deriving permit limits for sulfate once data is available. The Wanity Slough is not a source of drinking water and the 2009 NPDES Permit Renewal Fact Sheet specified that domestic water was not a designated use for the slough. For these reasons, secondary drinking water standards are not an appropriate basis for deriving permit limits.

**Comment 13.** WB requests that during the next permit renewal, the aquatic life criteria are used for establishing sulfate instead of secondary drinking water treatment standards.

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## Nutrient WQBELs

These comments address the nutrient (nitrogen and phosphorus) WQBELs proposed in the draft permit. As preface to these comments, WB agrees that additional nutrient reductions by all contributors be part of regional, long-term efforts to reduce nutrient loadings in the Yakima River basin. However, the nutrient limits for outfall 002 in the proposed permit are not scientifically supported and would be extremely costly without environmental benefits. *WB requests an alternative permitting path for nutrients that would accomplish interim data collection/studies while identifying defensible final nutrient limits in the next permit*. Specific technical comments/concerns and recommendations are provided below:

**Comment 14.** Percentile-based nutrient targets lack a defensible cause-effect basis. The EPA developed in-stream nutrient targets as percentiles of data from selected sites. These unpromulgated targets lack a mechanistic relation to algal/plant levels or beneficial uses of receiving waters. The percentile-based method is the lowest science approach of the 2000 *Nutrient Criteria Technical Guidance Manual: Rivers and Streams*. We note that EPA has already replaced this approach for lakes and reservoirs (EPA, 2000b) with more sophisticated criteria models based on stressor-response (EPA, 2021). Although simple to calculate, percentile-based targets have been widely criticized as lacking a firm link to designated uses. As stated by the National Association of Clean Water Agencies (2014):

> USEPA's 2000 ecoregional criteria—or state criteria derived using similar methods—are not presumed to represent valid concentration targets…the percentile-based method…does not directly address cause-and-effect…More rigorous means for deriving valid concentration targets include stressor-response methods…and mechanistic modeling.

In many cases, the use of percentile-based nutrient targets will have no benefit to receiving waters. Responding to overly simplified criteria derivation methods, the Association of State and Interstate Water Pollution Control Agencies (2007) (now the Association of Clean Water Agencies) stated:

> In many cases, such a relationship [between nutrient concentrations and response variables] cannot be demonstrated…These problems can only lead to miscues in impairment identification and misdirection of scare management and implementation resources.

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Lateral even has a connection to Wanity Slough any longer. The lack of a connection between Spencer Lateral and Wanity Slough further suggests that aquatic life in Spencer Lateral is not an appropriate designated use.

Correlations of nutrient concentrations with diatom metrics, as performed for the Washington N-STEPS report (Tetra Tech, 2018), would also be an inappropriate basis for regulatory nutrient targets. The diatom metrics employed are not useful measures of designated uses such as recreation, aquatic life, or public water supply. Like other forms of aquatic life, diatom communities correlate with various environmental gradients (temperature, water velocity, light, nutrients, salinity, etc.), and these gradients do not necessarily represent impairments. Inference of algal-related impairments should be based on demonstrable relations with aesthetics, toxic conditions, effects on fish/macroinvertebrates, or other direct measurements of use impacts.

**Comment 15.** Additional information on nutrient-algae dynamics in Wanity Slough is required prior to setting final nutrient limits for Wanity Slough. The draft permit includes new monitoring requirements for Wanity Slough and Spencer Lateral. WB agrees with EPA's determination that nutrient limits are not necessary for Spencer Lateral since nutrients are beneficial for irrigation water. The same rationale should apply for Wanity Slough since water is diverted from Wanity Slough for irrigation at the Marion Drain and other pumps along Wanity Slough. See Fact Sheet for Wapato Irrigation Project Page 3 Included as Attachment 4.. WB agrees that additional nutrient monitoring is necessary to understand water quality conditions and cause-effect relations in Wanity Slough. However, the development of any nutrient permit limits for discharges to Wanity Slough should follow rather than precede any new insights that the monitoring provides. The available monitoring data raise legitimate questions about the role of nutrients in Wanity Slough and the appropriateness of the draft final limits, as discussed in subcomments below:

a. *Trophic conditions in Wanity Slough are similar upstream and downstream of the WB outfall, and strongly influenced by seasonal variability in irrigation flows*. Wanity Slough contains abundant plant or algae growth even upstream of the outfall under certain conditions (Figure 1). This is not surprising for a low-gradient channel that receives abundant irrigation return flows and agriculturally influenced groundwater inputs, BIA 2020Upstream plant and algae accumulations tend to be highest outside of the irrigation season, when water levels and flow rates are low. During the irrigation season, water level and flow rates are much higher. High plant/algal growth is much less visible during the irrigation season due to the scouring effect of higher flow rates, deeper water levels, and light limitation (Figure 2).


*Figure 1 - Wanity Slough upstream of Toppenish, showing typical conditions under lower water levels. Note abundant plant growth in the stream. Source: Google Earth Pro*

*Figure 2 - Wanity Slough upstream of Toppenish, showing typical conditions during the irrigation season.*

These spatial and seasonal patterns raise important questions regarding the benefit (or lack thereof) of stringent point source nutrient limits to Wanity Slough. Firstly, it suggests that agriculturally influenced groundwater and other irrigation return flows upstream of the outfall already have more than sufficient nutrients to support growth when flow conditions are otherwise favorable for biomass accumulations. Even assuming greatly increased implementation of agricultural management practices over future decades, it is unclear if nutrient limitations can be practically imposed on growth in the Slough, either upstream or downstream of the outfall. If such nutrient limitations cannot practically be implemented in the long term, costly nutrient limits in WB permit would have no aesthetic or environmental benefits to Wanity Slough.

Secondly, the seasonal pattern shows that subjective aesthetic impairments are generally absent during irrigation season, which is the season during which the proposed limits would apply. This also undermines the expectation that costly nutrient limits would benefit Wanity Slough. Additional monitoring is needed to understand the difference between upstream and downstream plant/algae conditions, and the effects of likely effects of changes in nutrient concentrations during and outside of the irrigation season.

Finally, as noted, as the EPA fact sheet appropriately acknowledges regarding Spencer Lateral, that nutrients in irrigation water are generally a benefit to irrigation uses and therefore nutrient limits for discharges to Spencer Lateral are not warranted. As with Spencer Lateral, much of the water in Wanity Slough is used for irrigation during the irrigation season. In fact, the water is re-used many times for irrigation by recycling through agricultural return flows, (BIA 2020). One possible outcome of additional study is a discharger-specific variance that acknowledges irrigation as the primary use of Wanity Slough and imposes more reasonable nutrient controls as WB's contribution to watershed-wide nutrient reductions.

b. *Nutrients are unlikely to be the primary cause of low dissolved oxygen (DO) concentrations in Wanity Slough*. The draft permit fact sheet comes to the premature and possibly erroneous conclusion that low DO concentrations are caused by excess nutrients. However, DO is sometimes already below the 8 mg/L target upstream of the outfall. Many other processes can cause sub-8 mg/L DO in streams, including entry of low-DO groundwater, sediment oxygen demand, and low stream velocity/reaeration. Eutrophic systems usually have higher (not lower) daytime DO concentrations, bringing into doubt whether eutrophic effects are really the cause of the lower DO concentrations. Additional investigation is required to determine the drivers of low DO in Wanity Slough.

c. *Macrophytes obtain nutrients from the sediment and are not controlled by water column nutrient reductions*. As stated by USGS (2009) in the Yakima River basin nutrient study report:

> Lowering nutrient concentrations…might not impact the level of macrophyte growth because macrophytes with extensive root systems…can get nutrients from river sediment…this study did not indicate any nutrient uptake by the macrophytes from the water column.

The fact that macrophytes can meet nutrient requirements from the sediment has been confirmed by many other authors (e.g., Barko and Smart, 1981; Hilton and others, 2006; Angelstein and Shubert, 2008). The Washington Department of Ecology (2014) has noted the impracticality of imposing nutrient limitations on macrophytes as follows:

> [Water column phosphorus] may be of limited significance in a water body dominated by rooted macrophytes…as these plants are typically able to compensate for any shortfall in their phosphorus needs by uptake from the sediment.

Additional investigation is required to determine the role of macrophytes vs. algae in the productivity of Wanity Slough, which will provide insights into benefits or lack thereof of specific nutrient concentration targets.

d. *The optimum levels of nitrogen vs. phosphorus reduction should be determined for the specific receiving waters*. Assuming that nutrient limitations can be imposed on primary productivity in Wanity Slough (to be determined), the relative benefits of nitrogen and phosphorus reduction requires additional investigation. Even in cases of co-limitation by N and P, it is often more cost effective to achieve the desired responses by preferentially controlling one nutrient to a greater degree than the other. This decision has a large impact on the technology to be utilized and overall costs, and simple percentile-based nutrient targets are not capable of informing this important decision.

In addition to more monitoring, an empirical or model-based evaluation of algal responses in Wanity Slough could provide insights on nutrient-algal dynamics that could in turn result in a more effective and cost-effective control approach. Modeling tools such as QUAL2Kw can be used to simulate nutrient dynamics, benthic algae growth, and diel DO/pH variations in

Wanity Slough. Such tools can also predict how the system would change in response to changes in point and nonpoint source nutrient loadings.

**Comment 16.** The available scientific information shows that the proposed nutrient limits would not affect trophic conditions in the Yakima River. The stringent and costly nutrient limits that EPA has proposed for outfall 002 are disconnected from—and out of proportion to—any reasonable expectations of responses in the Yakima River. The draft permit fact sheet cites the USGS (2018) Yakima River basin nutrient study as one basis of the need for nutrient limits. However, even in the Zillah Reach, the great majority of USGS measurements indicated negligible nutrient limitation by N or P, even though prevailing nutrient concentrations in this reach are already significantly lower than the N and P targets calculated by EPA for the WB permit. Downstream reaches experienced even less nutrient limitation, and as stated above, USGS did not consider nutrients to be a manageable factor in controlling macrophyte growth.

USGS also concluded that nutrients in groundwater inflows "…might still provide an adequate supply of nutrients for periphytic algal growth." Ecology (2010) determined that "shallow groundwater is the primary source of nitrogen loading to irrigation return flow drains" in the Yakima River basin. Nutrients in groundwater are primarily derived from agriculture, which occupies 70-80% of the land area in the Lower Yakima Valley (Ecology, 2010). Based on this information, a cause-effect analysis would conclude that the nutrient limits proposed for WB would incur high treatment costs (assuming that feasible control technology could achieve the proposed limits) without any measurable effect on trophic conditions of the Yakima River.

**Comment 17.** Nutrient reductions for the Yakima River should be planned through an equitable watershed-based process. In light of the previous comment, it is clear that nutrient controls at WB are meaningless for the Yakima River outside of a long-term, coordinated effort to reduce nutrients from all controllable sources, and especially agriculture. Ecology (2010) notes the need for a watershed action plan that "would set load allocations for nutrients returning to the Yakima River in irrigation return flows, from permitted point sources, and from groundwater pathways." Outside of such a framework, using simplistic percentile-based targets to assign nutrient limits to a minority source would merely incur prohibitively high treatment costs for WB with no measurable benefits to the Yakima River.

WB would be glad to participate in a technical and public process to determine the best manner to achieve watershed-wide nutrient reductions in an equitable manner. Such a process could consider various approaches for point sources and industrial facilities in the basin, and a realistic perspective on their relative contribution and expected benefits. Such approaches could include cause-and-effect based nutrient targets, technology-based limits, or percent loading reduction goals.

**Comment 18.** Calculation and expression of nutrient WQBELs should be adjusted to reflect difference between nutrient and toxic parameters. As stated in other comments, WB does not believe that defensible nutrients WQBELs can be derived at this time. However, if and when nutrient WQBELs are developed, we recommend that EPA apply widely endorsed adaptions of toxics-based permitting methods for nutrients. These adaptions are consistent with EPA guidance, permitting precedent and training materials, and are recommended to consider fundamental differences between toxic and eutrophication-related impacts in the aquatic environment.

a. *The critical streamflow for nutrients should be the summer median streamflow or equivalent*. The 7Q10 value streamflow is very low and rare streamflow condition and technically inappropriate for developing permit limits related to the narrative nutrient standard. The 7Q10 streamflow was specifically derive for permitting criteria that have 1-

hour to 4-day averaging period (EPA, 1991). But as stated in the draft permit fact sheet, the narrative nutrient standard for aesthetics is a *seasonal average*. As stated by EPA training materials for development nutrient permit limits[2]:

> For nutrients, we…select critical flows for rivers and streams that reflect the duration and frequency components of the applicable nutrient criteria…For example, if the applicable nutrient criterion is an annual average criterion, an appropriate hydrologically based critical flow for our steady-state model might be a measure of the annual average flow.

Washington State's WQS define the critical condition for permitting as the 7Q10 "unless determined otherwise by the department". Hence, WB believe that EPA has the flexibility to adjust the critical condition for nutrients, in consultation with Ecology.

b. *Nutrient WQBELs should be based on 100% mixing*. This comment emphasizes a point previously made in comment #6. Similar to the previous comment, the use of partial mixing for nutrient limits would represent a failure to adapt toxics-based permitting methods for nutrients. Mixing zone and partial mixing concepts have been developed to protect aquatic life from localized toxic conditions. This does not apply to nutrient standards to protect aesthetic conditions.

c. *When water quality-based nutrient limits are needed, they should be expressed as seasonal averages, and maximum daily nutrient limits should not be assigned*. The permit limit should be aligned with the temporal expression of the standard. Daily limits are especially meaningless for nutrients because eutrophic effects only manifest themselves over longer time frames. The draft permit fact sheet correctly interprets the narrative criterion for aesthetics as a seasonal average. The fact sheet also cites 40 CFR 122.45(d) as the basis for assigning monthly and maximum daily limits. However, that requirement only applies "unless impracticable". EPA guidance and permitting precedents are clear that the longer durations needed to manifest eutrophic effects (compared to toxics effects) are a valid basis for concluding that short-term permit limits are impracticable for nutrients. For example, EPA's *Frequent Questions: Nutrient Criteria Implementation*[3] states that:

> …seasonal permit limits may be acceptable if they are consistent with applicable water quality standards, and with the assumptions and requirements of the wasteload allocation of any approved TMDL. For example, if the water quality standards for nutrients provide for seasonal limits, permits can include seasonal limits.

As examples of permitting precedents: For the protection of the Chesapeake Bay, the EPA (2004) made a formal determination that it was "impracticable" to express effluent limitations as daily maximum, weekly average, or monthly average", and that annual permit limits were appropriate. Similarly, the Wisconsin DNR (2012) prepared a formal justification for the use of monthly, growing season (6-month), or annual averaging for NPDES limits, and that has been accepted by EPA. EPA training materials for preparing nutrient permit limits also make it clear that seasonal average WQBELs (without daily, weekly, or monthly averages):

> …might…be appropriate when implementing annual or seasonal average criteria for nutrients or when implementing an interpretation of a narrative criterion that uses annual or seasonal nutrient targets. In fact, where this is the case, it might be preferable to include an annual or seasonal limit in the permit.

[2] https://www.epa.gov/npdes/npdes-permit-writers-specialty-training-addressing-nutrient-pollution-npdes-permits
[3] https://www.epa.gov/nutrient-policy-data/frequent-questions-nutrient-criteria-implementation#permits

**Comment 19.** Final nutrient limits should not be adopted prior to the completion of EPA's ongoing effort to update ELGs for the meat and poultry industry. EPA published the *Effluent Guidelines Program Plan 15* in January 2023. As part of the plan, EPA announced the intention to reevaluate ELGs for the meat and poultry industry, specifically to address nutrient discharges. EPA expects to propose a regulation by December 2023. In light of this imminent regulatory action, WB does not believe that now is the time to propose stringent final nutrient limits. The forthcoming ELGs might be a preferred basis of limits, especially considering the scientifically problematic nature of the nutrient targets in the draft permit as discussed in previous comments. Or alternatively, final limits might be derived by considering both the revised ELGs and receiving water considerations, as informed from the recommended monitoring/study of receiving waters.

**Comment 20.** The proposed nutrient limits on outfall 002 are beyond technology breakpoints of diminishing return and would have adverse effects on sustainability. Nutrient limits can be classified by the technology required to achieve them. For WB and most other point sources, the great majority of nutrient load would be removed by one treatment tier, and then much higher incremental capital and O&M costs would be incurred to attain slightly lower limits that do not reduce the algal growth potential in receiving waters. A growing body of literature demonstrates that pushing facilities past these technology breakpoints also cause detrimental effects with regard to a host of environmental metrics such as energy demand, greenhouse gas emissions, chemical use, solids generation, water use, acidification potential, and ozone depletion (Falk and others, 2013; Foley and others, 2010; Shaw and others, 2011; EPA, 2022). For example, as stated by EPA (2022):

> …clear trade-offs in cost and potential environmental impact were demonstrated between treatment level configurations. This suggests that careful consideration should be given to the benefits from lower nutrient levels compared to the potential environmental and economic costs associated with treatment processes used to achieve those levels.

It is unclear if the nitrogen limit is feasible at WB, and even if it was, it would likely require large capital and O&M investments to remove a small minority of the nitrogen load. As discussed in previous comments, the scientific basis of the limits is highly questionable, and an equitable regional approach to nutrient reduction might result in very different permitting approaches. We request that prior to setting numerical nutrient WQBELs, WB be afforded the opportunity to evaluate treatability, determine the treatability breakpoints, and consider sustainability effects as recommended by EPA (2022). Such an evaluation might demonstrate that alternative technology-based limits (either informed by ELGs or site-specific) would represent WB's reasonable and sustainable contribution toward regional efforts to reduce nutrient loading. Also, such an evaluation could form the basis for a variance request once one becomes available.

**Comment 21.** Poorly degradable organic nitrogen should be excluded from the nitrogen limit. Most forms of organic nitrogen are not directly available to support primary production, but instead must first be transformed to inorganic forms. The susceptibility to biouptake varies by organic nitrogen form. Some organic nitrogen compounds hydrolyze over relatively short time periods, whereas others are resistant to degradation in the aquatic environment (EPA, 1978; Murthy and others, 2006; Wiegner and others, 2006). Some forms of organic nitrogen are not completely recalcitrant, but hydrolize at such low rates (or equivalently, over such long stream distances) that they are not a significant factor in sustaining high rates of primary production. For this reason, some agencies have chosen to regulate dissolved inorganic nitrogen (DIN) in lieu of total nitrogen; examples include the Colorado Regulation 85 and the Washington Department of Ecology's Puget Sound Nutrient General Permit. Virginia is an example of a state that allows case-by-case demonstrations of the non-bioavailability of organic nitrogen in wastewater (9VAC25-820-70).

The WB effluent is likely to contain a mix of organic nitrogen compounds, including the possibility of poorly degradable forms that will be difficult to remove during treatment and will not readily become bioavailable in the receiving water. The average effluent BOD5 at WB is less than 3.3 mg/L. This demonstrates that very little of the organic nitrogen is hydrolyzed to ammonia (which exerts oxygen demand) over the course of the test. Poorly degradable organic nitrogen might make the proposed nitrogen limits on outfall 002 technically infeasible without prohibitively expensive treatment, beyond best available technology economically achievable (BAT) defined for the industry. Prior to setting final nitrogen limits, we request the opportunity to perform further testing and determine what proportion or concentrations of organic nitrogen should be excluded from the limit.

**Comment 22.** Poorly degradable organic phosphorus should be excluded from any final phosphorus limit. As with organic nitrogen, a portion of the organic phosphorus might also be poorly degradable and not factor in sustaining primary production. As with nitrogen, poorly degradable organic phosphorus might make the proposed phosphorus limits on outfall 002 technically infeasible without expensive treatment. Prior to setting final phosphorus limits, we request the opportunity to perform further testing and determine what proportion or concentrations of organic phosphorus should be excluded from the limit.

**Comment 23. Requested permitting approach for nutrients.** Building upon the comments above, WB requests that numerical WQBELs for total nitrogen and total phosphorus be deferred, with the total nitrogen limit set to the concentration based TBEL and total phosphorus concentrations limit as report only year-round. The studies below will provide a strong scientific and regulatory basis for a nutrient control approach. Regulatory options for consideration could include site-specific in-stream nutrient targets, WQBELs, revised TBELs, watershed-based permitting, a discharger-specific variance, or a combination of these elements.

As part of this request, WB proposes that the following nutrient-related studies be included in the permit as Special Conditions:

a) *Wanity Slough Water Quality Study: Under this condition, WB will submit a study plan to EPA within 6 months of the effective permit date. The plan will outline a monitoring and modeling approach to determine the drivers of low DO concentrations in Wanity Slough, impacts of nutrients on water quality or algal conditions within the Slough, and potential alternatives for nutrient control, including setting site-specific nutrient targets. Upon EPA approval, WB will have 2.5 years to conduct the study and document results in a report to be submitted to EPA for review.*

b) *Nutrient treatability study. Under this condition, WB will submit a study plan to EPA within 4 months of the effective permit date. The plan will outline a study approach to investigate the treatability of nutrients at WB, including the treatability and bioavailability of organic nitrogen in the effluent. As outlined in the schedule below, the study activities will include collection of baseline effluent data, a pilot study to reduce load and enhance removal, and degradation testing. Upon EPA approval, WB will have 2 years to conduct the study and document results in a report to be submitted to EPA for review.*

These Special Conditions would provide the necessary time and data to derive scientifically defensible numerical WQBELs prior to the next permit renewal. The results of EPA's ongoing revisions to the ELGs could also be considered by that time. Note that these studies would essentially replace (or encapsulate) the surface water monitoring required by the draft permit at Part I.D.

## Compliance Schedule (Fact Sheet Section V.A; Permit Part II.C)

As noted throughout WB's public notice review comments on the development of the new and/or more stringent limits, including both the overall process and the data used, WB believes setting numerical WQBEL limits for nutrients is premature. WB is proposing that a water quality study and treatment evaluation be conducted to support development of reasonable, defensible and technically achievable limits. WB will have to consider whether treatment above and beyond BAT for the industry is cost prohibitive. WB anticipates this evaluation period would take at least 3 years to collect the data needed to inform development of limits.

**Comment 24**. As discussed in Comment #23, in lieu of a "Compliance Schedule" the attached schedule provides the timeline for completion of the studies that WB proposes to implement under Special Conditions to the permit. This proposed schedule to complete the Special Condition studies through submittal of the study data and review by EPA to set a basis for limits is 3 years into the permit cycle. WB understands that EPA could reopen the permit within this permit cycle to apply the newly established limits. With that in mind, WB has included an additional timeline ("future compliance schedule") to show the activities that would need to be completed before WB could comply with final limits. These activities include treatment evaluation, design, construction, and installation to meet final limits set by EPA. WB anticipates needing an additional 4 years (at minimum) to achieve compliance once new final limits are set.

**Comment 25**. Considering WB's requests detailed in Comments #12, 23 and 24 , WB requests that the Schedule of Compliance in Permit Part II.C be modified to include Whole Effluent Toxicity (WET) at Outfall 002 only as all other effluent limits addressed in the compliance schedule in the draft permit are not technically supportable at this time. As detailed in Attachment 2, WB requests that the requirement be modified to allow WB 4 years and 11 months from the effective date of the final permit to evaluate effluent toxicity to determine compliance needs and a reasonable schedule to achieve compliance with the final WET limits specified for Outfall 002 in Part I.B, Table 1.

***Refer to the proposed schedule via the Gantt chart attached at the end of Attachment 1.***

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## Other General Comments

- **Discharge Monitoring Report (DMR).** Current DMR reporting to the EPA is on the 10th of each month. Occasionally, samples collected the last few days of a calendar month are not reported back to WB from the lab in time to be submitted on the DMR. This results in the submission of an incomplete DMR. Once results are received from the lab, WB must resubmit and recertify the DMR. Ecology has a DMR reporting date on the 15th of each month.

**Comment 26.** WB is requesting a change in the due date of DMRs to the 15th of each month to decrease submission of incomplete DMRs and to align with Ecology reporting.

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## Draft Permit – Specific Comments

A red-lined version of the draft permit reflecting the comments above, as well as other more specific text changes is included as **Attachment 2** to WB's comment submittal.

## NPDES Fact Sheet – Specific Comments

WB submits a general request that all permit changes should be accurately reflected in the Fact Sheet. A red-lined version of the fact sheet reflecting the comments above, as well as other more specific text changes is included as **Attachment 3** to WB's comment submittal.

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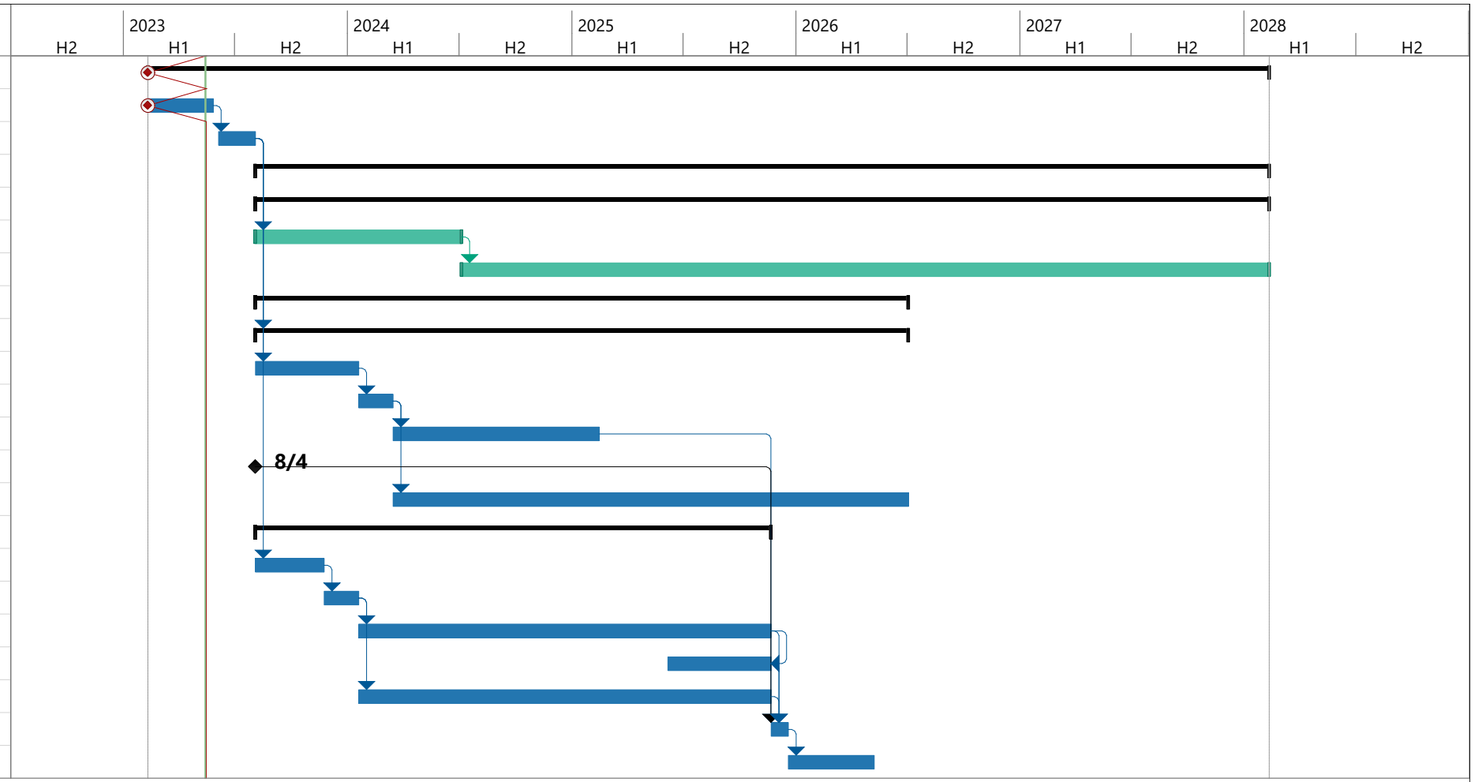
| ID | Task Name | Duration |
|---|---|---|
| 1 | **Washington Beef Draft Permit WA0050202** | **1305 days** |
| 2 | Public Comment Period | 76 days |
| 3 | Permit Issued [Estimated] | 60 edays |
| 4 | **Compliance Schedule [Comment 25]** | **1180 days** |
| 5 | **Outfall 002 WET Limits** | **1180 days** |
| 6 | Evaluate Effluent Toxicity | 12 mons |
| 7 | Determine Compliance Strategy and Schedule | 47 mons |
| 8 | **Special Condition Study Schedule [Comment 24]** | **760 days** |
| 9 | **Wanity Slough Water Quality Study [Comment 23(a)]** | **760 days** |
| 10 | Wanity Slough Water Quality Workplan | 6 mons |
| 11 | EPA Approval of Workplan | 2 mons |
| 12 | In Stream Testing | 12 mons |
| 13 | Derivation of nutrient control alternatives | 0 days |
| 14 | Data evaluation and Modeling | 30 mons |
| 15 | **Nutrient Treatability Study [Comment 23(b)]** | **600 days** |
| 16 | Nutrient Treatability Workplan | 4 mons |
| 17 | EPA Approval of Workplan | 2 mons |
| 18 | Enhanced Baseline effluent data | 24 mons |
| 19 | Study to reduce load and enhance removal | 6 mons |
| 20 | BODu sampling | 24 mons |
| 21 | WB Submits Study Reports | 1 mon |
| 22 | **USEPA Review of Studies to Set Basis for Final Nutrient Limits** | **5 mons** |



Instructions

# Reasonable Potential Calculation

| | |
|---|---|
| **Facility** | Agri Beef |
| **Water Body Type** | Freshwater |
| **Rec. Water Hardness** | ** Enter Hardness on DFCalc Tab ** |

| Dilution Factors: | Acute | Chronic |
|---|---|---|
| Aquatic Life | 1.4 | 6.1 |
| Human Health Carcinogenic | | 54.0 |
| Human Health Non-Carcinogenic | | 23.8 |

| Pollutant, CAS No. & NPDES Application Ref. No. | | | AMMONIA, Criteria as Total NH3 | NITRATE/NITRITE (N) | CHLORINE (Total Residual) 7782505 | SOLIDS,DISSOLVED AND SALINITY | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Effluent Data** | # of Samples (n) | | 271 | 271 | 25 | 29 | | | | | | | |
| | Coeff of Variation (Cv) | | 2.0 | 2.3 | 0.6 | 0.075 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| | Effluent Concentration, ug/L (Max. or 95th Percentile) | | 470 | | 26 | | | | | | | | |
| | Calculated 50th percentile Effluent Conc. (when n>10) | | | 38700 | | 2290000.00 | | | | | | | |
| **Receiving Water Data** | 90th Percentile Conc., ug/L | | 130 | | 0 | 8.35 | | | | | | | |
| | Geo Mean, ug/L | | | 425 | | 109000 | | | | | | | |
| **Water Quality Criteria** | Aquatic Life Criteria, ug/L | Acute | 13,085 | - | 19 | - | | | | | | | |
| | | Chronic | 1,248 | - | 11 | See Gold Book | | | | | | | |
| | WQ Criteria for Protection of Human Health, ug/L | | - | 10000 | - | 500000 | | | | | | | |
| | Metal Criteria Translator, decimal | Acute | - | - | - | - | | | | | | | |
| | | Chronic | - | - | - | - | | | | | | | |
| | Carcinogen? | | N | N | N | N | | | | | | | |

**Aquatic Life Reasonable Potential**

| | | | | | |
|---|---|---|---|---|---|
| Effluent percentile value | | | 0.950 | 0.950 | 0.950 |
| s | $s^2=\ln(CV^2+1)$ | | 1.269 | 0.555 | 0.075 |
| Pn | $Pn=(1\text{-confidence level})^{1/n}$ | | 0.989 | 0.887 | 0.902 |
| Multiplier | | | 1.00 | 1.00 | 1.00 |
| Max concentration (ug/L) at edge of… | | Acute | 371 | 18.406 | 2.439 |
| | | Chronic | 186 | 4.260 | 6.982 |
| **Reasonable Potential? Limit Required?** | | | **NO** | **NO** | **#VALUE!** |

**Aquatic Life Limit Calculation**

| | | | | | |
|---|---|---|---|---|---|
| # of Compliance Samples Expected per month | | | | | |
| LTA Coeff. Var. (CV), decimal | | | | | |
| Permit Limit Coeff. Var. (CV), decimal | | | | | |
| Waste Load Allocations, ug/L | | Acute | | | |
| | | Chronic | | | |
| Long Term Averages, ug/L | | Acute | | | |
| | | Chronic | | | |
| Limiting LTA, ug/L | | | | | |
| Metal Translator or 1? | | | | | |
| Average Monthly Limit (AML), ug/L | | | | | |
| Maximum Daily Limit (MDL), ug/L | | | | | |

**Human Health Reasonable Potential**

| | | | | |
|---|---|---|---|---|
| s | $s^2=\ln(CV^2+1)$ | | 1.35608 | 0.074894851 |
| Pn | Pn=(1-confidence level)1/n | | 0.989 | 0.902 |
| Multiplier | | | 0.04477 | 0.907756751 |
| Dilution Factor | | | 23.8 | 23.8 |
| Max Conc. at edge of Chronic Zone, ug/L | | | 2033.19 | 200638.6555 |
| **Reasonable Potential? Limit Required?** | | | **NO** | **NO** |

**Human Health Limit Calculation**

| | | | | | |
|---|---|---|---|---|---|
| # of Compliance Samples Expected per month | | | | | |
| Average Monthly Effluent Limit, ug/L | | | | | |
| Maximum Daily Effluent Limit, ug/L | | | | | |

**Comments/Notes:**

**References:** WAC 173-201A,

Technical Support Document for Water Quality-based Toxics Control, US EPA, March 1991, EPA/505/2-90-001, pages 56/99

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Override formatting & show Aq. Life Limit Calc?** | N | N | N | N | N | N | N | N | N | N | N |
| **Override formatting & show HH Limit Calc?** | N | N | N | N | N | N | N | N | N | N | N |

Instructions

# Reasonable Potential Calculation

| | |
|---|---|
| **Facility** | Agri Beef |
| **Water Body Type** | Freshwater |
| **Rec. Water Hardness** | ** Enter Hardness on DFCalc Tab ** |

| Dilution Factors: | Acute | Chronic |
|---|---|---|
| Aquatic Life | 1.3 | 4.4 |
| Human Health Carcinogenic | | 38.5 |
| Human Health Non-Carcinogenic | | 15.8 |

| **Pollutant, CAS No. & NPDES Application Ref. No.** | | | AMMONIA, Criteria as Total NH3 | NITRATE/NITRITE (N) | CHLORINE (Total Residual) 7782505 | SOLIDS,DISSOLVED AND SALINITY | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Effluent Data** | # of Samples (n) | | 198 | 198 | 25 | 29 | | | | | | | |
| | Coeff of Variation (Cv) | | 1.8 | 2.0 | 0.6 | 0.075 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| | Effluent Concentration, ug/L (Max. or 95th Percentile) | | 1,510 | | 24 | | | | | | | | |
| | Calculated 50th percentile Effluent Conc. (when n>10) | | | 37500 | | 2290000.00 | | | | | | | |
| **Receiving Water Data** | 90th Percentile Conc., ug/L | | 140 | | 0 | | | | | | | | |
| | Geo Mean, ug/L | | | 425 | | 109000 | | | | | | | |
| **Water Quality Criteria** | Aquatic Life Criteria, ug/L | Acute | 13,483 | - | 19 | - | | | | | | | |
| | | Chronic | 1,247 | - | 11 | See Gold Book | | | | | | | |
| | WQ Criteria for Protection of Human Health, ug/L | | - | 10000 | - | 500000 | | | | | | | |
| | Metal Criteria Translator, decimal | Acute | - | - | - | - | | | | | | | |
| | | Chronic | - | - | - | - | | | | | | | |
| | Carcinogen? | | N | N | N | N | | | | | | | |

**Aquatic Life Reasonable Potential**

| | | | | | |
|---|---|---|---|---|---|
| Effluent percentile value | | | 0.950 | 0.950 | 0.950 |
| s | $s^2=\ln(CV^2+1)$ | | 1.202 | 0.555 | 0.075 |
| Pn | $Pn=(1\text{-confidence level})^{1/n}$ | | 0.985 | 0.887 | 0.902 |
| Multiplier | | | 1.00 | 1.00 | 1.00 |
| Max concentration (ug/L) at edge of… | | Acute | 1,221 | 18.932 | 0.000 |
| | | Chronic | 455 | 5.511 | 0.000 |
| **Reasonable Potential? Limit Required?** | | | **NO** | **NO** | **#VALUE!** |

**Aquatic Life Limit Calculation**

| | | | | | |
|---|---|---|---|---|---|
| # of Compliance Samples Expected per month | | | | | |
| LTA Coeff. Var. (CV), decimal | | | | | |
| Permit Limit Coeff. Var. (CV), decimal | | | | | |
| Waste Load Allocations, ug/L | | Acute | | | |
| | | Chronic | | | |
| Long Term Averages, ug/L | | Acute | | | |
| | | Chronic | | | |
| Limiting LTA, ug/L | | | | | |
| Metal Translator or 1? | | | | | |
| Average Monthly Limit (AML), ug/L | | | | | |
| Maximum Daily Limit (MDL), ug/L | | | | | |

**Human Health Reasonable Potential**

| | | | | |
|---|---|---|---|---|
| s | $s^2=\ln(CV^2+1)$ | | 1.26864 | 0.074894851 |
| Pn | Pn=(1-confidence level)1/n | | 0.985 | 0.902 |
| Multiplier | | | 0.06377 | 0.907756751 |
| Dilution Factor | | | 15.8 | 15.8 |
| Max Conc. at edge of Chronic Zone, ug/L | | | 2771.52 | 247037.9747 |
| **Reasonable Potential? Limit Required?** | | | **NO** | **NO** |

**Human Health Limit Calculation**

| | | | | | |
|---|---|---|---|---|---|
| # of Compliance Samples Expected per month | | | | | |
| Average Monthly Effluent Limit, ug/L | | | | | |
| Maximum Daily Effluent Limit, ug/L | | | | | |

**Comments/Notes:**

**References:** WAC 173-201A,

Technical Support Document for Water Quality-based Toxics Control, US EPA, March 1991, EPA/505/2-90-001, pages 56/99

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Override formatting & show Aq. Life Limit Calc?** | N | N | N | N | N | N | N | N | N | N | N |
| **Override formatting & show HH Limit Calc?** | N | N | N | N | N | N | N | N | N | N | N |